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Optical and transport properties of organic and organometal halide perovskite semiconductors

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Document Version

Publisher's PDF, also known as Version of record

Publication date:

2017

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Gao, Y. (2017). *Optical and transport properties of organic and organometal halide perovskite semiconductors*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen.

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Propositions

Accompanying the thesis of

“Optical and transport properties of organic and organometal halide perovskite semiconductors”

Yajun Gao

1. Adapted CELIV experiments can distinguish between electron and hole transport (Chapter 3).
2. The lifetime of charge carriers in organic semiconductors can be amazingly long if they are given a chance to be alone (Chapter 4).
3. Band gap renormalization due to the presence of hot electrons produces a photo-induced absorption band at the fundamental band gap energy (Chapter 6).
4. For semiconductors, the photo-induced absorption signals above the fundamental band gap are always mixed with photo-bleaching signals.
5. Energy transfer does not necessarily involve charge transfer, but charge transfer is certain to involve energy transfer.
6. Straightforward explanations are more often valid than sophisticated ones. For instance, the reason polar bears never hunt for penguins, is simply because they never see each other.
7. Chinese characters are more entitled to the pride of China than the Great Wall. The former builds on innovation and development, and aims for communication and mutual understanding; while the latter builds on oppression and countless lives of ordinary people, and aims for isolation from the outside world.
8. In a long journey, travelers may feel tired but are never exhausted by mountains to be climbed or swamps to be crossed as long as the beacon of hope is shining.
9. Doubling work efficiency may lead to more than doubling the outcome.